



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08 915,658	08 21 1997	JIGISH D TRIVEDI	MIO024PA	1803

7590 01.02.2003

KILLWORTH GOTTMAN HAGAN & SCHAEFF  
ONE DAYTON CENTRE SUITE 500  
ONE SOUTH MAIN STREET  
DAYTON, OH 454022023

EXAMINER

PERALTA, GINETTE

ART UNIT PAPER NUMBER

2814

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

08/915,658

Applicant(s)

TRIVEDI, JIGISH D

Examiner

Ginette Peralta

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 31 to 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto (U.S. Pat. 4,910,578).

Okamoto teaches in Fig. 4D an interconnect comprising a composite structure comprising a first metal silicide 4, a second metal silicide 8, and an intermetallic compound 10 comprising metal from the first metal silicide and metal from the second metal silicide; wherein the first metal silicide may comprise titanium silicide (col. 4, l. 43) and the second metal silicide may comprise tungsten silicide (col. 6, l. 49-51), and the intermetallic compound 10 comprises titanium tungsten (TiW) (col. 6, l. 64-66).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 35 to 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto (U.S. Pat. 4,910,578) in view of Shepard (U.S. Pat. 5,227,333).

Okamoto teaches in Fig. 4D an interconnect comprising a composite structure comprising a first metal silicide 4, a second metal silicide 8, and an intermetallic compound 10 comprising metal from the first metal silicide and metal from the second metal silicide; wherein the first metal silicide may comprise titanium silicide (col. 4, l. 43) and the second metal silicide may comprise tungsten silicide (col. 6, l. 49-51), and the intermetallic compound 10 comprises titanium tungsten (TiW) (col. 6, l. 64-66).

Okamoto teaches the claimed invention with the exception of showing a field effect transistor having a source, a drain and a gate, formed in the semiconductor layer.

However, Shepard shows a local interconnect for connecting source, drain or gate of a field effect transistor to another active area within a substrate assembly, the local interconnect comprises a composite structure that includes a plurality of metal silicide layers.

Therefore, it would have been obvious to one of ordinary skill in the art to connect a source, drain or gate to another area within a substrate assembly as taught by Shepard with an interconnect with a composite structure as the one taught by Okamoto in order to obtain a reliable interconnect that provides a good electrical contact to silicon and does not further react with the device contact region.

Furthermore, memory arrays are well known to be LSI circuits as discussed in Okamoto.

*Response to Arguments*

1. Applicant's arguments filed 11/6/02 have been fully considered but they are not persuasive.

Applicant's argument regarding the feature of the intermetallic compound containing no non-metallic material has been noted, it has also been noted that Okamoto et al. as applied above teaches an intermetallic compound of TiW that contains metal from the first metal silicide (titanium) and metal from the second metal silicide (tungsten), thus applicant's invention is anticipated and no non-metallic materials are contained in the intermetallic compound.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (703) 305-7722. The examiner can normally be reached on Monday to Friday 8:00 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Application/Control Number: 08/915,658

Page 5

Art Unit: 2814

GP

December 29, 2002

*[Handwritten signature]*  
S. [unclear]  
TECHNICAL